

**IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF TEXAS  
MIDLAND DIVISION**

FINALROD IP, LLC AND R2R AND D, LLC	§	
D/B/A SUPEROD,	§	
	§	<b>CIVIL ACTION NO. 7:15-cv-00097</b>
PLAINTIFFS/COUNTER-DEFENDANTS,	§	
	§	<b>JURY TRIAL DEMANDED</b>
V.	§	
	§	
JOHN CRANE, INC. AND JOHN CRANE	§	
PRODUCTION SOLUTIONS, INC., AND	§	
ENDURANCE LIFT SOLUTIONS, INC.	§	
	§	
DEFENDANTS/COUNTER-PLAINTIFFS.		

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**PLAINTIFFS' POST-HEARING BRIEF**

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Plaintiffs Finalrod IP, LLC and R2R and D, LLC (collectively, “Superod”) hereby submit this post-hearing brief for consideration of the Court’s impending ruling on Defendants’ Motion to Exclude Certain Opinions and Testimony of Chris Hetmaniak [ECF 294]. Specifically, Superod submits the following: 1) to clarify that Mr. Hetmaniak does not require a Finite Element Analysis (“FEA”) to conclude that the Series 300 end fitting infringes the patents-in-suit, and 2) to show the Court that Mr. Hetmaniak did opine *in his report* on the similarities between the commercial Series 300 and the Series 300 prototype that the FEA was performed on.

**I. MR. HETMANIAK CONCLUDED THAT THE SERIES 300 INFRINGED THE PATENTS-IN-SUIT WITHOUT USE OF AN FEA<sup>1</sup>**

Despite Defendants’ insistence to the contrary, Mr. Hetmaniak never stated in his report that an FEA was required to determine the compressive forces in Defendants’ Series 300 end

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<sup>1</sup> Mr. Hetmaniak also concluded that the Series 200 infringed the ‘951 Patent and the ‘757 Patent prior to *any* FEA being produced in this case, proving that it is not necessary to perform an FEA to determine whether the accused product infringes the patents-in-suit. *See* ECF 293-6, Mr. Hetmaniak’s August 10, 2018 Report.

fitting. In fact, Mr. Hetmaniak analyzed “the structure and function of the Series 300 end fitting, and the individual parts of the Series 300 end fitting, including their design and functionality,” as well as “Machine Drawings” for the 1.0” and 1.25” Series 300 end fittings, and concluded that the ‘951 Patent and the ‘757 Patent were infringed without a single mention of any FEA. *See* ECF 293-8, Exhibit E to Defendants’ Motion, Mr. Hetmaniak’s February 22, 2019 Report at pp. 7 and 15. Mr. Hetmaniak’s report provides the following technical description of how the compressive forces are distributed based on his knowledge and experience:<sup>2</sup>

When the fiberglass sucker rod is properly assembled, each wedge in the end fitting has a correspondingly fitted epoxy wedge that has been cured in the cavity formed by the wedge in the end fitting. When an axial load is applied to the fiberglass sucker rod, the fiberglass rod displaces very slightly toward the open end of the fitting. When this happens, since they are rigidly bonded to the fiberglass rod, the epoxy wedges displace slightly towards their mating steel wedge surfaces. The innermost wedge (i.e. the wedge nearest the closed end of the end fitting cavity), with the largest angle, builds load first. The largest angle causes the wedging action to initiate first. This is analogous to the case of pushing a crate up a steeper inclined plane: the larger angle leads to a quicker wedging action, with the axial displacement, of driving the epoxy towards the outer surface of the fiberglass rod. This leads to an increased compressive load (i.e. “radial squeeze”) on the fiberglass rod via the epoxy. So, as the tensile load on the fiberglass rod continues to cause the deflection of the fiberglass rod within the end fitting cavity, the compressive loading on the rod at that wedge continues to increase as well.

The epoxy has a lower modulus of elasticity compared to the fiberglass rod and the steel. Therefore, it will move and deform more than the steel or the fiberglass rod. As the load is applied to the fiberglass rod, the rod will move slightly (relative to the end fitting) until ultimately a steady state load balance is achieved and the movement/displacement of the fiberglass rod relative to the end fitting ceases. Assuming the epoxy adherence to the fiberglass is effective, the epoxy wedges effectively move into their corresponding steel wedges. This is where the wedge arrangement of the ‘951 Patent demonstrates its effectiveness.

Once the innermost wedge begins to assume load in this manner, the next wedge, with its slightly smaller angle, will then also begin to assume load in this same manner. Steady state load balance has not been achieved yet and so the fiberglass rod continues to displace relative to the end fitting. As this happens, the second wedge then begins to assume load as well. However, two important events happen. First, since the fiberglass rod is still displacing relative to the end

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<sup>2</sup> *Id.* at pp. 16-17 and 19.

fitting, the first wedge continues to increase compressive load at that point on the fiberglass rod. Secondly, since the second angle is less than the first angle, compressive load is built on the rod at that location, but not as quickly. This effect at the second wedge is analogous to pushing a box up a less steep inclined plane. The net effect is that the compressive load (squeeze) on the rod at the location of the second wedge is less than that of the first wedge location.

The same phenomena will repeat for all subsequent wedges, progressing outward toward the open end of the end fitting. Ultimately, the compressive load (squeeze) on the fiberglass rod is reduced from wedge location to wedge location from the innermost wedge to the outermost wedge. If this progression of angle and length differences is maintained as specified in the '951 Patent, this behavior will be maintained, regardless of the number of wedges.

Defendants' Series 300 end fittings perform in the same manner as described and claimed in the '951 Patent.

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The Series 300 incorporates a wedge system wherein the length of the wedges increases from the innermost wedge to the outermost wedge. As described in the discussion above on the '951 Patent, this arrangement, by design, allows for a force distribution where the compressive force on the fiberglass rod is greatest at the innermost wedge and smallest at the outermost wedge.

Only after concluding that the Series 300 infringes the '951 Patent and the '757 Patent did Mr. Hetmaniak analyze the FEA of the Series 300 prototype for additional support of his opinion. As such, Mr. Hetmaniak's opinion is not dependent upon the FEA of the Series 300 prototype and excluding his testimony on infringement of the Series 300 is improper.

## **II. MR. HETMANIAK DID COMPARE THE SIMILARITIES BETWEEN THE COMMERCIAL SERIES 300 AND THE FEA ON THE PROTOTYPE SERIES 300 *IN HIS REPORT***

During the February 21, 2020 hearing, this Court requested express language in Mr. Hetmaniak's Report regarding the similarities between the commercial version of the Series 300 and the FEA of the prototype Series 300. *See* Exhibit A to Superod's Motion for Leave at 51:24-53:23. Post-hearing review of Mr. Hetmaniak's Report confirmed that he did, in fact, opine on the similarities between the two devices. Specifically, his Report contains the following

statements related to the similar characteristics between the Series 300 and the FEA produced by Defendants:<sup>3</sup>

- To examine geometrical features of the end fitting, and in particular, the wedge structure details, I recreated the wedge profile from the nodal structure contained in the mesh. It is a twelve (12) wedge design.
- The fitting analyzed in this FEA has a twelve wedge system. From the closed end to the open end, the wedge lengths become progressively longer. Additionally, the angles of the wedges decrease from the closed end to the open end. These characteristics are consistent with the claims of the ‘951 and ‘757 Patents. The key dimensions extracted from the nodal mesh are shown in Figure 1. The change in wedge length from the closed end to the open end, and the aggressive change in the angle of the leading edge of each wedge **are consistent with the geometry disclosed in the Series 300 patent** [which is the same geometry of the commercial Series 300].

Mr. Hetmaniak provided a detailed analysis of the data extracted from the FEA and results of the FEA in his report. Mr. Hetmaniak also compared those results to the ‘951 Patent and ‘757 Patent, as well as the Series 300 to confirm the number of wedges and the geometric profile. This was further explained in his deposition when questioned on the use of the FEA.<sup>4</sup>

Accordingly, because Mr. Hetmaniak’s infringement opinion of the Series 300 is fully supported in his Report, exclusion is improper.

### III. CONCLUSION

Superod submits that the foregoing clarification resolves the issues raised by the Court in the February 21, 2020 hearing. As such, Superod respectfully requests this Court to deny Defendants’ Motion to Exclude Opinions and Testimony of Mr. Hetmaniak in its entirety.

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<sup>3</sup> See ECF 293-8, Mr. Hetmaniak’s Feb. 22 Report at p. 21 (emphasis added).

<sup>4</sup> If Superod is not able to use the deposition testimony of Mr. Hetmaniak to clarify or elaborate on opinions expressly contained in his Report, Defendants cannot use that same testimony to exclude Mr. Hetmaniak, as they are attempting to do. Either Mr. Hetmaniak’s testimony is relevant – and therefore provides more than sufficient support for his opinions – or it is not, and it must not be given any weight in considering Defendants’ Motion to exclude.

DATED: February 25, 2020

RESPECTFULLY SUBMITTED,

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**CERTIFICATE OF SERVICE**

I hereby certify that the foregoing document has been filed on this 25<sup>th</sup> day of February, 2020, pursuant to the electronic filing requirements of the United States District Court for the Western District of Texas, which provide for service on counsel of record in accordance with the electronic filing protocols in place.

/s/ John D. Holman